CHILTON'S

IRON AGE

MANUFACTURING MANAGEMENT

December 3, 1984

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ADVERSARIAL AMERICA

IS BUSINESS BECOMING A HOUSE DIVIDED?

HOW DIAGNOSTICS IS CUTTING MACHINE TOOL DOWNTIME

HUMANIZING CAD/CAM WORKSTATION DESIGN

ANOTHER DUPLEX STAINLESS STEEL CATCHES ON

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IRON AGE
MANUFACTURING MANAGEMENT

Editorial 5
The real name of the game.

Newswatch 11
Australia may join the space race.

You and Your Job 23
The key to job performance is motivation.

Financial Analysis 26
Plant spending turns inside out.

Adversarial America 30
Special interest politics impacts business.

Machine Tool Diagnostics 57
One key to the automatic factory of the future.

Trends in CAD/CAM Workstations 65
Prices are falling; more specific software is available.

In-Plant Spotlight 70
Bethlehem Steel really does modernize its plants.

Alloy 2205 76
This high strength duplex stainless takes on Type 316.

Materials Report 85
Domestic steelmakers see little improvement in orders.

Order Trends 92
Durable orders post their second monthly decline.

Next Issue: Scrapbook of American Business Humor.

Departments

EDITORIAL STAFF	6
SIGNED, SEALED AND DELIVERED	8
INDUSTRIAL BRIEFS	18
PRODUCT & EQUIPMENT REVIEW	80
AD INDEX	82
MANAGEMENT SERVICE CARD	83
BUSINESS STAFF	84
P&P DATA 11/12	86
FERROUS SCRAP II/12	87
STEEL PRICES	88
STEEL PRICES	89
CLEARING HOUSE	90

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PLANT SPENDING TURNS INSIDE OUT

How is capital spending doing? The question doesn't make much sense now that a two-tier investment pattern is in effect.

Investment in Capital Equipment by U.S. Industry

In Billions of 1972 Dollars

Investment Outlays Made For:	1980	1983	Pct. Changes
*Products of Basic Goods Industries	$22.5	$15.2	−32%
Office, Computing & Accounting Mach.	19.3	32.1	+66%

Source: U.S. Commerce Dept.

*Agricultural Mach., Construction Mach., Mining & Oilfield Mach., General Industrial Machinery including Materials Handling Equipment, Metalworking Machinery.

BY JOHN D. BAXTER

A highlight of the current expansion has been the red-hot pace of business investment in new plant and equipment.

For example, the overall economy—measured by real GNP—grew by 7.5 pct from the second quarter of 1983 to the same period this year. Over the same time span, real business investment in plant grew by 18 pct. And investment in capital equipment grew by 25 pct.

Not only has capital spending been the pace-setter in the current business recovery, but it has also been much stronger than in recent past recoveries. Investment grew at a 16 pct average annual rate during the first six quarters of this expansion, more than triple the 5 pct average gain during the same time span of the last three recovery periods.

Many executives in basic goods capital equipment lines openly question these figures. They have good reasons to be doubters. Their own order books tell a far different story.

The table here gives an idea of what has been going on in business investment. The 'mix' of this investment has changed radically in recent years. The change trend in the mix is not new, but recent data shows the extent and the accelerating pace.

In 1980, spending for capital goods produced by basic industries was greater than that for office, computing and accounting machinery—$22.5 billion to $19.3 billion.

But, by 1983, spending on basic goods capital items was **down** 32 pct to $15.2 billion. At the same time, investment in office, computing and accounting machinery was **up** 66 pct to $32.1 billion.

The basic industry capital goods include metalworking machinery, agricultural and construction equipment and mining and material handling equipment.

An irony in the changing mix is that some of the biggest buyers of office, computing and accounting machinery have been companies in basic goods industries.

If there is a 'message' in this fast-changing mix of business capital investment, it is that the monitoring of aggregate data fails to indicate the magnitude and direction of U.S. industry investment.

Lopsided balance sheets pose a threat

The business recovery has been around for 23 months. Still, as analysts at Morgan Stanley & Co. note, "few companies have made an effort to strengthen their balance sheets."

Among nonfinancial corporations, short-term debt has swelled twice as rapidly as usual for this time in an expansion. Longer term debt has grown at half its normal pace. The danger, as seen by the bank's experts, is that companies "have been left with extraordinary exposure to higher interest rates."

The bank finds "little" protection on the asset side. The current ratio—ratio of liquid assets to short-term liabilities—noted bank economists, "has never looked worse at this stage of a business cycle."

If interest rates rise, there will be "a renewed round of pressure on the bottom line," said the analysts. One of the most vulnerable industries would be basic materials producers.

Analysts at Chase Manhattan Bank have also red-flagged the corporate balance sheet situation. They see a long-range problem. In checking debt-to-equity ratios, Chase economists note there has been some recovery-induced declines in the ratio. However, they caution, "while the ratio generally does fall off during an economic recovery, succeeding declines over the last 15 years have bottomed out at ever-higher levels."

PRICE & PRODUCTION DATA

(Effective November 12, 1984)

Steel production by districts, thousands of tons (000 omitted)

	Last Week	Two Weeks Ago	Month Ago	Year Ago
North East Coast	127	128	181	182
Pittsburgh	195	182	187	236
Youngstown	90	89	73	81
Lake Erie	109	127	160	139
Detroit	143	130	143	131
Chicago	411	412	355	506
Cincinnati	84	81	89	85
St. Louis	68	72	50	74
Southern	176	164	161	155
Western	66	67	74	74
U.S. Production	1,469	1,452	1,473	1,672

Source: American Iron & Steel Institute

Lake Superior Ore Prices

51.50% Fe Natural delivered lower Lake ports. Rail transportation, handling and unloading may be charged to the account of the buyer. Coarse ore 80¢ premium.

Pellets (per iron unit natural).....gross-ton 80.50-86.9*
Mesabi, regular-unscreened .....gross-ton $32.53
Mesabi, non-bessemer.....gross-ton $30.03-31.53**

*80.50¢—Pickands Mather as of 1/27/81.
86.9¢—U. S. Steel as of 3/15/82. Cleveland-Cliffs as of 2/26/82, Oglebay Norton as of 3/25/82, and Hanna Mining as of 2/26/82.
**Effective 6/1/83.

STEEL PRODUCTION, COMPOSITE PRICES

(Effective November 12, 1984)

U.S. Steel Production	Last Week	Two Weeks Ago	To Date 1984	To Date 1983
Net tons, in thousands	1,469	1,452	80,600	70,817
Capability Utilization Rate	56.7	56.1	69.2	54.5

Composite Prices	This Week	Week Ago	Month Ago	Year Ago
Finished Steel Base* (¢/lb.—eff. 7/1/84)	27.582	27.582	27.582	26.822
Pig Iron* * (Net ton=2000 lbs.)	$213.00	$213.00	$213.00	$213.00
Scrap No. 1 hvy.* * * (Gross ton=2240 lbs.)	$ 79.17	$ 79.50	$ 85.17	$ 80.50
No. 2 bundles	$ 51.17	$ 50.83	$ 52.17	$ 48.17

Scrap Comparison (Gross Ton)

No. 1 steel, Pittsburgh..	$ 81.50	$ 81.50	$ 92.50	$ 84.50
No. 1 steel, Philadelphia..	75.50	76.50	81.50	77.50
No. 1 steel, Chicago.....	80.50	80.50	81.50	79.50
No. 1 bundles, Detroit.....	64.50	64.50	77.50	81.50
Low Phos., Youngstown..	72.50	72.50	80.50	84.50
No. 1 mach'y cast., Pgh...	66.50	66.50	71.50	74.50
No. 1 mach'y cast., Phila.	98.50	98.50	98.50	95.50
No. 1 mach'y cast., Chi..	110.50	110.50	115.50	109.50

*Finished Steel Composite: Weighted index of steel bars, shapes, plates, wire, rails, black pipe, hot and cold rolled sheets and strips.
* *Pig Iron Composite: Based on average prices for basic and foundry pig iron at representative producing points within the U.S.
* * *Steel Scrap Composite: Average of No. 1 hvy. melting steel scrap and No. 2 bundles delivered to consumers at Pittsburgh, Philadelphia and Chicago.

NONFERROUS PRICES

(Effective November 12, 1984) Prices obtained in trade based on representative tonnages per gross ton delivered to consumer unless otherwise stated

Primary Metal Prices

(cents per lb.)	current price	last price	date of change
Aluminum (LME)	52.58	50.94	11/12/84
Copper (C)	66.00-67.00	65.00-67.00	11/8/84
Lead	26.00-26.00	25.00-26.00	11/9/84
Magnesium Ingot	148.00	143.00	5/25/84
Nickel (LME)	217.69	216.54	11/12/84
Titanium Sponge	555.00-585.00	555.00	4/29/82
Zinc	45.00	45.00-48.00	9/21/84

ALUMINUM: Avg. for last week & previous week. COPPER (C) = cathode. LEAD: common grade. MAGNESIUM: 99.8% pig, delivered. NICKEL: Avg. for last week & previous week. Canada. ZINC: high grade.

Antimony, American Laredo, Texas	$2.00
Beryllium-aluminum 5% Be, per lb. contained Be	$230.00
Beryllium-copper, per lb. cont. Be	$140.00
Beryllium 97% powder 200	$178.00
Cadmium, ton lots	$1.55
Calcium, ton lots, crown	$3.58
Chromium, 99.8%	$3.75
Cobalt, 99%, cathode	$12.50
Gold per troy oz.	$345.75
Indium, dollars per troy oz.	$3.30
Iridium, dollars per troy oz.	$450
Magnesium sticks, 10,000 lbs.	$1.97
Mercury, per 76-lb. f.o.b. N.Y.	$327-339
Molybdenum, lb. tech. moly oxides, 20 lb. MO can	$6.85
Nickel electro (PDCR)	$3.29
Palladium, per troy oz.	$147
Platinum, per troy oz.	$336
Rhodium, per troy oz.	$800
Silver ingots, per troy oz.	$7.68
Vanadium	$6.00
Zirconium sponge	$12.00-$17.00

(Per lb. unless otherwise noted)

Straits Tin Price

(U.S. cents per lb, EX-SMELTER, based on daily market in Penang in Malaysian dollars per kilo.)

Nov. 5—555.20
Nov. 6—Holiday
Nov. 7—554.65
Nov. 8—555.24
Nov. 9—555.84

Scrap Prices
Brass Mill Scrap

(Cents per lb; over 20,000 lbs. add 1¢ per lb)

	Solids	Turning
Copper	58½	50
Yellow brass	54⅞	51
Red brass	56¾	50
Comm. bronze	57¼	50
Mang. bronze	57⅜	48
Free cutting rod ends	51	50

Custom Smelters Scrap

(Cents per lb., carload lots, del. refinery)

No. 1 copper wire	56
No. 2 copper wire	47
Light copper	38

Ingot Makers Scrap

(Cents per lb., carload lots, del. refinery)

No. 1 copper wire	52
No. 2 copper wire	43
Light copper	34
No. 1 composition	45
No. 1 comp. turnings	42
Hvy. yellow brass solids	34
Hvy. yellow brass turnings	31
Radiators	37

Aluminum

New mixed clips	34	—35
Old sheet	32	—33
Old cast	32	—33
Clean dry borings	33	—34

Dealers' Scrap

(Dealers' buying price f.o.b. New York in cents per pound)

Aluminum

Segregated clippings	27	—29
Mixed L.C. clips	24	—26
Old sheets and cast	22	—23
Borings and turnings	18	—20
Duraluminum clippings	24	—25

Copper and Brass

No. 1 copper wire	42	—43
No. 2 copper wire	34	—35
Light copper	29	—30
Radiators	31	—32
No. 1 composition	40	—41
No. 1 composition turn'gs	37	—38
Cocks and faucets	27	—28
Clean heavy yellow brass	28	—29
Brass Pipe	29	—30
New soft brass clippings	41	—42

Lead

Heavy soft lead	9	—10
Whole batteries	3	— 4
Type metal	16	—17
Electrotype	13	—14

Nickel

Nickel solids	115	—120
Nickel rod ends	115	—120
Nickel sheets, clips	115	—120
Nickel turnings	40	— 45

Zinc

New zinc clippings	18	— 19
Old diecast zinc	14	— 15

EFFECTIVE NOV. 12, 1984

(Effective November 12, 1984) Prices obtained in trade based on representative tonnages per gross ton delivered to consumer unless otherwise stated. Prices are the opinions of *Iron Age* editors and correspondents, based on contacts with dealers, brokers, generators and users in the industry on the effective date listed above.

Ferrous Scrap Prices

Pittsburgh

No. 1 hvy. melting	$ 81.00 to	$ 82.00
No. 2 hvy. melting	71.00 to	72.00
No. 1 dealer bundles	89.00 to	90.00
No. 1 factory bundles (auto)	89.00 to	90.00
No. 2 bundles	52.00 to	53.00
No. 1 busheling	89.00 to	90.00
Machine shop turn	10.00 to	11.00
Shoveling turnings	51.00 to	52.00
Cast iron borings	49.00 to	50.00
Low phos. punchings plate	99.00 to	100.00
Heavy turnings	71.00 to	72.00
No. 1 RR hvy. melting	90.00 to	91.00
Rails 2 ft. and under	105.00 to	106.00
Scrap rails, random lgth	96.00 to	97.00
RR specialties	102.00 to	103.00
No. 1 machinery cast	66.00 to	67.00
Cupola cast	59.00 to	60.00
Heavy breakable cast	30.00 to	31.00
Stainless		
18-8 bundles and solids	570.00 to	580.00
18-8 turnings	470.00 to	480.00

Chicago

No. 1 hvy. melting	$ 80.00 to	$ 81.00
No. 2 hvy. melting	75.00 to	76.00
No. 1 dealer bundles	90.00 to	91.00
No. 1 factory bundles (auto)	89.00 to	90.00
No. 2 dealer bundles	54.00 to	55.00
No. 1 busheling	91.00 to	92.00
Shredder scrap	92.00 to	93.00
Machine shop turn	43.00 to	44.00
Mixed bor. and turn	44.00 to	45.00
Shoveling turnings	48.00 to	49.00
Cast iron borings	48.00 to	49.00
Low phos. forge crop	114.00 to	115.00
Low phos. punchings plate ⅛ in. and heavier	124.00 to	125.00
Low phos. 2 ft. and under	119.00 to	120.00
No. 1 RR hvy. melting	86.00 to	87.00
Scrap rails, random lgth	88.00 to	89.00
Reroller rails	99.00 to	100.00
Rails, 2 ft. and under	113.00 to	114.00
RR couplers and knuckles	90.00 to	91.00
RR car axles	123.00 to	124.00
No. 1 machinery cast	110.00 to	111.00
Cupola cast	99.00 to	100.00
Stove plate	94.00 to	95.00
Steel car wheels	100.00 to	101.00
Stainless		
18-8 bundles and solids	490.00 to	500.00
18-8 turnings	420.00 to	430.00
430 bundles and solids	120.00 to	125.00
430 turnings	80.00 to	90.00

Philadelphia

No. 1 hvy. melting	$ 74.00 to	$ 77.00
No. 2 hvy. melting	66.00 to	69.00
No. 1 dealer bundles	87.00 to	90.00
No. 2 dealer bundles	45.00 to	48.00
No. 1 busheling	87.00 to	90.00
Shredder scrap	95.00 to	98.00
Machine shop turn	29.00 to	32.00
Mixed bor. and turn	29.00 to	32.00
Shoveling turnings	38.00 to	41.00
Low phos. 5 ft. and under	84.00 to	87.00
Low phos. 2 ft. punchings	110.00 to	113.00
Electric furnace bundles	95.00 to	98.00
RR specialties	90.00 to	93.00
Rails, 2 ft. and under	112.00 to	115.00
Cupola cast	78.00 to	81.00
Heavy breakable cast	57.00 to	60.00
No. 1 machinery cast	97.00 to	100.00

Detroit

Broker buying prices per gross ton on cars:

No. 1 hvy. melting	$ 52.00 to	$ 53.00
No. 2 hvy. melting	51.00 to	52.00
No. 1 dealer bundles	64.00 to	65.00
No. 2 bundles	34.00 to	35.00
No. 1 busheling	63.00 to	64.00
Drop forge flashings	40.00 to	41.00
Machine shop turn	44.00 to	45.00
Mixed borings and turn	21.00 to	22.00
Shoveling turnings	45.00 to	46.00
Cast iron borings	31.00 to	32.00
Heavy breakable cast	40.00 to	41.00
Mixed cupola cast	56.00 to	57.00
Automobile cast	80.00 to	81.00
Stainless		
18-8 bundles and solids	455.00 to	465.00
18-8 turnings	360.00 to	370.00
430 bundles and solids	110.00 to	120.00

Youngstown

No. 1 hvy. melting	$ 59.00 to	$ 62.00
No. 2 hvy. melting	42.00 to	45.00
No. 1 dealer bundles	71.00 to	74.00
No. 2 dealer bundles	35.00 to	38.00
Machine shop turn	11.00 to	14.00
Shoveling turnings	16.00 to	19.00
Low phos. plate	71.00 to	74.00
Electric furnace bundles	69.00 to	72.00
Galvanized bundles	59.00 to	62.00

Cleveland

No. 1 hvy. melting	$ 53.00 to	$ 56.00
No. 2 hvy. melting	37.00 to	40.00
No. 1 dealer bundles	65.00 to	68.00
No. 1 factory bundles	77.00 to	80.00
No. 2 bundles	19.00 to	22.00
No. 1 busheling	67.00 to	70.00
Machine shop turn	6.00 to	9.00
Mixed bor. and turn	6.00 to	9.00
Shoveling turnings	7.00 to	10.00
Cast iron borings	10.00 to	13.00
Cut structural & plates, 2 ft. and under	100.00 to	103.00
Low phos. punchings plate	100.00 to	103.00
Drop forge flashings	35.00 to	38.00
Foundry steel, 2 ft. & under	57.00 to	60.00
No. 1 RR hvy melting	75.00 to	78.00
Rails, 2 ft. and under	105.00 to	108.00
Rails, 18 in. and under	106.00 to	109.00
Steel axle turnings	56.00 to	59.00
Railroad cast	89.00 to	91.00
No. 1 machinery cast	99.00 to	101.00
Cupola cast	55.00 to	58.00
Stove plate	41.00 to	44.00
Stainless		
18-8 bundles	375.00 to	385.00
18-8 turnings	325.00 to	335.00
430 bundles	80.00 to	85.00

Buffalo

Broker buying prices per gross ton on cars:

No. 1 hvy. melting	$ 62.00 to	$ 63.00
No. 2 hvy. melting	51.00 to	52.00
No. 1 busheling	72.00 to	73.00
No. 1 dealer bundles	71.00 to	72.00
No. 2 bundles	36.00 to	37.00
Machine shop turn	12.00 to	13.00
Mixed bor. and turn	11.00 to	12.00
Shoveling turnings	15.00 to	16.00
Cast iron borings	20.00 to	21.00
Low phos. plate	92.00 to	93.00
Structural and plate, 2 ft. and under	95.00 to	96.00
Rails, 2 ft. and under	95.00 to	96.00
Scrap rails, random lgth	72.00 to	73.00
No. 1 machinery cast	78.00 to	79.00
No. 1 cupola cast	58.00 to	59.00

St. Louis

No. 1 hvy. melting	$ 62.00 to	$ 63.00
No. 2 hvy. melting	51.00 to	52.00
Foundry steel, 2 ft.	62.00 to	63.00
No. 1 dealer bundles	62.00 to	63.00
No. 2 bundles	46.00 to	47.00
Machine shop turn	17.00 to	18.00
Shoveling turnings	23.00 to	24.00
Cast iron borings	27.00 to	28.00
No. 1 RR hvy. melting	62.00 to	63.00
Rails, random length	67.00 to	68.00
Rails, 18 in. and under	85.00 to	86.00
RR specialties	82.00 to	83.00
Cupola cast	72.00 to	73.00
Heavy breakable cast	50.00 to	51.00
Stove plate	83.00 to	84.00
Steel car wheels	96.00 to	97.00
Rerolling rails	80.00 to	81.00
Unstripped motor blocks	61.00 to	62.00

Birmingham

No. 1 heavy melting	$ 70.00 to	$ 71.00
No. 2 heavy melting	85.00 to	86.00
No. 1 dealer bundles	71.00 to	72.00
No. 2 bundles	49.00 to	50.00
No. 1 busheling	71.00 to	72.00
Shredder scrap	94.00 to	95.00
Machine shop. turn	23.00 to	24.00
Shoveling turnings	38.00 to	39.00
Cast iron borings	38.00 to	39.00
Electric furnace bundles	68.00 to	69.00
Elec. furnace, 3 ft. & under	70.00 to	71.00
Structural and plate, 2 ft.	99.00 to	100.00
Structural and plate, 4 ft.	89.00 to	90.00
No. 1 RR hvy. melting	89.00 to	90.00
Scrap rails, random lgth	85.00 to	86.00
Rails, 2 ft. and under	103.00 to	104.00
Angles and splice bars	89.00 to	90.00
No. 1 cupola cast	86.00 to	87.00
Unstripped motor blocks	67.00 to	68.00

Cincinnati

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 51.00 to	$ 52.00
No. 2 hvy. melting	50.00 to	51.00
No. 1 dealer bundles	63.00 to	64.00
No. 2 bundles	27.00 to	28.00
Machine shop turn	4.00 to	5.00
Shoveling turnings	6.00 to	7.00
Cast iron borings	17.00 to	18.00
Low phos. 18 in. and under	85.00 to	86.00
Rails, random length	66.00 to	67.00
Rails, 2 ft. and under	80.00 to	81.00
No. 1 cupola cast	57.00 to	58.00
Heavy breakable cast	26.00 to	27.00
Drop broken cast	76.00 to	77.00

New York

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 48.00 to	$ 50.00
No. 2 hvy. melting	39.00 to	41.00
No. 2 dealer bundles	23.00 to	27.00
Mixed bor. and turn	11.00 to	13.00
Machine shop turn	6.00 to	7.00
Shoveling turnings	14.00 to	15.00
Clean cast, chem. borings	35.00 to	36.00
No. 1 machinery cast	89.00 to	90.00
Mixed yard cast	50.00 to	51.00
Heavy breakable cast	10.00 to	12.00
Stainless		
18-8 prepared solids	490.00 to	510.00
18-8 turnings	390.00 to	410.00
430 prepared solids	90.00 to	110.00
410 solids	80.00 to	90.00

Boston

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 60.00 to	$ 62.00
No. 2 hvy. melting	50.00 to	52.00
No. 1 dealer bundles	60.00 to	62.00
No. 2 bundles	37.00 to	39.00
No. 1 busheling	67.00 to	69.00
Shredder scrap	67.00 to	69.00
Machine shop turn	12.00 to	14.00
Shoveling turnings	20.00 to	22.00
No. 1 machinery cast	81.00 to	86.00
Mixed cupola cast	48.00 to	50.00
Heavy breakable cast	8.00 to	10.00

San Francisco

No. 1 hvy. melting	$ 44.00 to	$ 46.00
No. 2 hvy. melting	38.00 to	40.00
No. 1 dealer bundles	35.00 to	37.00
No. 2 dealer bundles	18.00 to	20.00
Machine shop turn	6.00 to	8.00
Cast iron borings	6.00 to	8.00
No. 1 cupola cast	81.00 to	83.00

Los Angeles

No. 1 hvy. melting	$ 45.00 to	$ 47.00
No. 2 hvy. melting	38.00 to	40.00
No. 1 dealer bundles	36.00 to	38.00
No. 2 dealer bundles	18.00 to	20.00
Machine shop turn	12.00 to	14.00
Shoveling turnings	8.00 to	10.00
Cast iron borings	6.00 to	8.00
Elec. furnace, 1 ft. and under (foundry)	74.00 to	76.00
No. 1 cupola cast	75.00 to	77.00

Seattle

No. 1 hvy. melting	$ 68.00 to	$ 70.00
No. 2 hvy. melting	57.00 to	59.00
No. 2 bundles	40.00 to	42.00
No. 1 cupola cast	92.00 to	93.00
Mixed yard cast	82.00 to	84.00

Hamilton, Ont.

Brokers buying price per net ton on cars:

No. 1 heavy melting	$ 91.00
No. 2 heavy melting cut 2 ft. and under	87.00
No. 1 dealer bundles	92.00
No. 2 bundles	53.00
Mixed steel scrap	62.00
Bush. new fact. prep'd.	93.00
Bush. new fact. unprp'd.	83.00
Machine shop turn	36.00
Short steel turn	38.00
Mixed bor. and turn	30.00
Cast scrap	79.00

Houston

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 69.00 to	$ 70.00
No. 2 hvy. melting	56.00 to	57.00
No. 2 bundles	42.00 to	43.00
Machine shop turn	13.00 to	14.00
Crushed turnings	31.00 to	32.00
Shredder scrap	73.00 to	74.00
Cut structural plate, 2 ft. and under	99.00 to	101.00
Cut structural plate, 5 ft. and under	83.00 to	86.00
Unstripped motor blocks	60.00 to	61.00
Cupola cast	77.00 to	79.00

PRODUCER KEY
With Principal Offices

A4 American Cladmetals Co., Carnegie, Pa.
A7 Armco Inc., Middletown, Ohio
A8 Atlantic Steel Co., Atlanta, Ga.
A11 Atlantic Wire Co., Branford, Conn.

B1 Baron Drawn Steel Corp., Toledo, Ohio
B3 Bethlehem Steel Corp., Bethlehem, Pa.
B4 Blair Strip Steel Co., New Castle, Pa.
B5 Bliss & Laughlin Steel Co., Harvey, Ill.

C1 Calstrip Corp., Los Angeles
C6 CF&I Steel Corp., Pueblo, Colo.
C10 Copperweld Steel Co., Warren, Ohio
C11 Crucible Divisions, Colt Industries, Pittsburgh, Pa.
C15 G. O. Carlson, Inc., Thorndale, Pa.
C16 Connors Steel Co., Birmingham, Ala.
C20 Calumet Steel Div., Chicago Heights, Ill.
C21 Cumberland Steel Co., Cumberland, Md.

D1 Detroit Strip Div., Cyclops Corp.
D2 Driver Wilbur B., Co., Newark, N. J.
D3 Driver Harris Co., Harrison, N. J.

E3 Enamel Products & Plating Co., McKeesport, Pa.
E4 Elliot Bros. Steel Co., New Castle, Pa.

F1 Firth Sterling, Inc., McKeesport, Pa.

G2 Granite City Steel Co., Granite City, Ill.
G3 Great Lakes Steel Division, National Steel Corp., Ecorse, Mich.
G4 Greer Steel Co., Dover, O.
G5 Green River Steel Corp., Owensboro, Ky.
G6 Gibraltar Steel Corp., Buffalo, N. Y.
G7 Georgetown Steel Corp., Georgetown, S. C.
G8 Guterl Special Steel Corp.

H1 Hercules Drawn Steel Corp., Livonia, Mich.

I2 Ingersoll Steel Div., New Castle, Ind.
I3 Inland Steel Co., Chicago, Ill.
I4 Interlake Steel Corp., Chicago

J2 Jessop Steel Corp., Washington, Pa.
J3 Jones & Laughlin Steel Corp., Pittsburgh
J4 Joslyn Mfg. & Supply Co., Chicago
J5 Judson Steel Corp., Emeryville, Calif.

K2 Keystone Consolidated Industries, Inc.
K3 Kentucky Electric Steel Co., Ashland, Kentucky
K5 Kemco Div., Foote Mineral Co., Keokuk, Iowa

L2 La Salle Steel Co., Chicago
L3 Lone Star Steel Co., Dallas
L4 Lukens Steel Co., Coatesville, Pa.
L5 Litho-Strip Corp., Chicago

M2 McLouth Steel Products Corp.
M4 Mid States Steel & Wire Co., Crawfordsville, Ind.
M8 Mill Strip Products Div., National Steel Service Center, National Steel Corp.
M9 Moltrup Steel Products Co., Beaver Falls, Pa.
M11 Midwest Steel Div., National Steel Corp., Portage, Ind.

N1 Northeast Precision Steel Co., Boston, Mass.
N4 Northwestern Steel & Wire Co., Sterling, Ill.
N6 Northwest Steel Rolling Mills, Seattle, Wash.
N9 Nelsen Steel & Wire Co., Chicago, Ill.
N10 North Star Steel Co., Saint Paul, Minnesota

O2 Oregon Steel Mills, Portland, Ore.

P2 Phoenix Steel Corp., Claymont, Del.
P9 Pacific States Steel Co., Niles, Cal
P14 Pacific Tube Co., Los Angeles
P15 Philadelphia Steel and Wire Corp., Phila.

R3 Republic Steel Corp., Cleveland
R4 Ramco Steel Co., Buffalo, N. Y.
R5 Roblin Steel Corp., Inc., North Tonawanda, N. Y.
R6 Rodney Metals, Inc., New Bedford, Mass.
R7 Rome Strip Steel Co., Rome, N. Y.

S1 Sharon Steel Corp., Sharon, Pa.
S7 Stanley Works, New Britain, Conn.
S8 Superior Drawn Steel Co., Monaca, Pa.
S10 Seneca Steel Service, Buffalo, N. Y.
S18 Southern Precision Steel Co., Gulfport, Miss.

T4 Thomas Steel Strip Co., Warren, O.
T5 Timken Company, Steel Division, Canton, O.
T7 Texas Steel Co., Fort Worth, Tex.
T9 Triumph Electro Corp., Chicago, Ill.
T10 Tennessee Forging Steel Corp., Harriman, Tenn.
T11 Teledyne Columbia-Summerill, Carnegie, Pa.

U1 United States Steel Corp., Pittsburgh, Pa.

W3 Weirton Steel Corp., Weirton, West Va.
W5 Wheeling-Pittsburgh Steel Corp.
W7 Wilson Steel & Wire Co., Chicago
W10 Wyckoff Steel Div., Ampco-Pittsburgh Corp., Pittsburgh, Pa.
W14 Whittaker Steel Strip Div., Detroit, Mich.

STEEL SERVICE CENTER PRICES

Price, Dollars per 100 lb

Prices are based on list prices reported to *Iron Age* by a number of metal service centers deemed representative by *Iron Age* and then weighted based in part on the reports received each month. Prices are not intended to reflect the actual transaction prices obtained by any individual metal service center.

Cities* / City Delivery Charge*	Sheets			Strip	Plates	Shapes	Bars		Alloy Bars			
	Hot-Rolled (10 gage)	Cold-Rolled (20 gage)	Galvanized (16 gage)	Hot-Rolled Strip	Plates	Standard Structurals	Hot-Rolled (merchant)	Cold Finished	Hot-Rolled 8620 As Rolled	Hot-Rolled 4140 Annealed	Cold-Drawn 8620 As Rolled	Cold-Drawn 4140 Annealed
Atlanta	29.65	33.55	34.48	31.63	27.02	23.28	19.55	31.25	34.34	50.60	69.58	73.19
Baltimore	26.90	30.72	37.59	39.82	34.75	28.80	22.60	36.40	51.89	56.95	63.60	66.98
Birmingham	26.60	32.82	34.59	31.64	26.64	23.01	19.99	30.91	49.31	58.90	68.10	74.43
Boston	34.94	40.19	45.64	47.54	33.25	30.06	23.59	40.29	47.92	51.02	58.48	63.50
Buffalo	31.10	35.68	41.89	40.15	30.60	26.15	19.86	36.70	44.15	47.85	53.92	59.84
Chicago	26.46	34.62	37.60	32.74	22.40	22.00	17.70	30.30	38.02	41.09	46.52	52.75
Cincinnati	29.60	34.58	37.16	30.65	23.14	20.75	17.96	32.96	37.16	42.54	46.63	52.44
Cleveland	28.48	34.22	37.48	36.74	23.60	25.56	18.60	36.35	38.19	44.60	47.48	53.93
Denver	31.44	38.19	36.22	36.36	27.40	25.80	20.10	43.00	50.55	57.95	65.95	70.19
Detroit	29.21	35.20	37.87	31.39	23.13	23.86	16.96	32.71	37.18	42.51	46.81	53.49
Houston	27.67	28.71	31.69	39.21	26.73	27.73	22.60	40.15	45.96	52.87	58.95	68.14
Kansas City	30.72	36.05	38.70	34.01	27.10	22.95	17.90	33.12	39.80	45.40	49.73	54.87
Los Angeles	27.01	31.33	37.84	35.32	29.83	33.12	26.52	39.40	50.86	57.10	63.15	70.84
Memphis	26.37	32.51	35.34	33.57	27.75	26.63	21.40	33.87	36.78	49.96	59.80	69.44
Milwaukee	29.35	34.89	37.85	33.06	22.82	24.18	17.56	30.89	36.58	41.65	45.66	52.60
New York	32.47	38.99	42.55	43.38	32.66	25.31	21.06	40.05	40.90	46.40	51.84	55.34
Philadelphia	28.10	38.99	41.23	43.50	31.05	28.11	18.99	36.44	45.80	50.25	60.22	65.42
Pittsburgh	35.27	40.97	45.23	43.45	37.60	30.44	21.29	28.74	38.43	44.84	49.90	54.10
Portland	28.96	32.06	38.73	36.93	32.98	34.78	27.87	44.85	49.78	57.74	70.44	....
San Francisco	26.94	31.55	36.60	35.58	28.61	31.19	25.78	39.72	50.70	57.69	63.90	70.06
Seattle	23.61	30.12	36.65	32.95	22.02	27.32	25.81	39.14	53.03	61.70	69.75	74.83
Spokane	21.21	30.42	35.65	38.02	35.00	33.77	21.97	43.01	43.20	47.52	....	58.32
St. Louis	29.11	34.60	37.31	34.59	23.69	22.90	18.15	33.87	38.12	43.51	47.86	53.69
St. Paul	28.87	33.61	36.69	38.36	23.81	23.73	17.70	33.96	37.52	42.72	47.09	53.31

Base Quantities. All HR products may be combined for quantity. Hot-rolled sheet, 10 ga x 36 x 96—120; Cold-rolled sheet, 20 ga x 36 x 120; Galv. sheet—18 ga x 36—120; Hot-rolled strip—⅛" x 1"; Plate ¼" x 84/; Shapes—I-Beams 6 x 12.5; Hot-rolled bar—Rounds ⅝-2 15/16; Cold finished bar—C 1018—1" rounds; Alloy bar—Hot-rolled 8620—1⅝" round; Cold drawn—1" round; Hot-rolled 4140—1⅝" round; Cold drawn—1" round. Check local supplier for additions or deductions from base.

*Prices at all points include metropolitan delivery charges.

Codes identify Producers listed in the Key on page 88. (Prices quoted are mill base prices in cents per pound unless otherwise noted and do not reflect extras or surcharges.) N.A.—Not available.

Billets, Blooms, Slabs

(Dollars per net ton)

Carbon Rerolling, Midwest	
W5	$366.00
N4	$366.00
West	
C6	$346.00
Carbon Forging, East	
B3(2), C10, U1	$473.00
R3	$453.00
Midwest	
R3, W5	$453.00
S1, U1, I3	$473.00
C10	$473.00
K2	$453.00
West	
B3(2)	$483.00
C6	$453.00
Alloy, East	
R3,	$492.00
B3, U1, C10	$512.00
Midwest	
W5	$492.00
U1, C10, I3	$512.00
R3	$492.00
S1	$512.00
West	
B3	$502.00
C6	$489.00

Piling Sheet Steel

(cents per lb)

Midwest	
U1	26.45

Structurals

Carbon, East	
B3	22.90
U1, J3	23.90
Midwest	
C20	22.90
W8	22.90
I3, T10, U1, N4	23.90
West	
C6	25.10
B3(2)	21.65
South	
C16, U1	23.90
T10	22.90
A8	Cmp*
High-Strength, Low Alloy, East	
B3	22.90
U1, J3	23.90
Midwest	
N4	23.90
W8	24.15
U1	23.90
I3	23.90
West	
B3	21.65
South	
U1, C16	23.90
Wide Flange, Carbon, East	
B3	22.90
U1, J3	23.90
Midwest	
U1	23.90
N4	23.90
I3	23.90
West	
C6	24.15

Strip

Hot-Rolled, Carbon, Cut II Edge—all widths, East	
U1, B3	23.75
J3	22.05
Midwest	
D1	22.05
I4	22.85
J3, D1, W3	22.05
G2, G3	23.45
N4	22.55
W5, S1, A7	23.75
U1, B3, I3	23.75
M2, R3	22.05
West	
B3	26.55
South	
R3	22.05
Cold-Rolled, Carbon Max. 25%, East	
E4	29.75
S10	29.60
P15	24.80
B4	36.60
G6	36.175
Midwest	
I4	38.30
W14	32.80
J4	34.05
S1	37.05
High-Strength, Hot-Rolled, Low Alloy, Cut Edge & Mill Edge—all widths, (plus extras)*	
Midwest	
M2, R3, W3, J3, I3	22.05
G2, G3	23.45
S1	23.75
A7	25.35
South	
R3	22.05
High-Strength, Cold-Rolled, Low Alloy, Mill Edge	
Midwest	
S1	37.05
Alloy, Hot-Rolled, Midwest (plus extras)*	
S1	26.10
I4	25.20
Alloy, Cold-Rolled, East	
C11, E4, M8	43.35
B4	47.25
P15	32.10
Midwest	
I4	44.30
S1	44.80

Sheets

Hot-Rolled, Carbon (18 Ga & Hvyr), East	
B3	23.75
J3	22.05
U1	23.75
Midwest	
M2, R3, W3	22.05
D1, J3	22.05
G2, G3	23.45
I4	22.45
U1, W5, S1, B3, I3, A7	23.75
West	
U1	24.25
South	
R3	22.05
Cold-Rolled, East, Class I	
B3(2)	28.15
J3	26.15
U1	28.15
Midwest	
R3, M2, W3	26.15
G2, G3, M11	27.65
I4	22.00
J3	26.15
D1	26.15
U1, W5, S1, B3, I3, A7	28.15
West	
U1	28.65
South	
R3	24.65
Galvanized (hot-dipped), East	
B3(2)	30.30
U1	30.30
Midwest	
J3, D1, W3	28.00
R3, Y1	28.00
G2, M11	30.00
U1, W5, S1, I3, A7	30.30
West	
U1	30.80
South	
R3	28.00
Enameling, Midwest	
U1, S1, I3, A7	29.65
J3	27.65
Long-Terne, Midwest	
W5, A7	31.65
U1	31.65
R3	29.35

Wire Rod

East	
B3(2)	22.35
Midwest	
N4, K2	22.35
U1	24.10
A7	22.00
West	
C6	21.45
South	
G7	22.35

Tinplate

Electrolytic Tinplate

Single Reduced (70 lb)	
East	**per base box**
J3	$26.29
U1	27.74
B3	27.54
Midwest	
U1	$27.74
J3	26.29
M11	27.24
W3	26.29
W5	27.74
West	
U1	$28.24
South	
U1	$27.74
Double Reduced (55 lb)**	
Midwest	
M11	$21.87
J3	21.49
U1	22.37
W3	21.49
W5	22.37
West	
U1	$22.87
South	
U1	$22.37
Black Plate	
Single Reduced (75 lb)*	
East	
B3	$24.31
Midwest	
J3, W5	$24.01
I3, W5	24.57
W3	24.01
U1, M11	25.26
West	
U1	$25.26
Double Reduced (55 lb)	
East	
B3	$20.49
Midwest	
M11	$19.70
W5	19.70
J3	18.93
W3	18.93
W5	18.93
U1	19.70
West	
U1	$19.70
South	
U1	$19.70

*70 lb—base weight extra 45¢
**50 lb—base weight extra $1.40

Bars

Carbon Steel, Hot-Rolled (Special quality)	
East	
R3, K3	25.80
R5	25.80
J3	25.80
U1, C10, B3(3)	27.05
Midwest	
I4	23.95
U1, I3	27.05
R3, T10, C20, N4	25.80
K2	25.80
I3	22.00*
A7	20.25
West	
B3	25.80
C6	24.45
South	
A8	20.65
C16	25.80
Cold-Finished Carbon, East	
A11	22.15
R3	33.75
C21	21.15
J3(4), L2	31.00
M8, W10, T11, S8	31.00
N1	24.475
R4	33.25
B4	33.25
C10	31.00
Midwest	
W10, R3, M9	33.25
J3	31.00
B1	33.45
L2	30.75
N9	31.00
W14	22.20
B5	34.75
West	
R3	37.15
South	
J3	34.00
C16	24.40
J3	31.95
Alloy, Hot-Rolled, East	
R5, K3	27.95
R3, J3	27.95
U1, B3(2), C10	29.20
Midwest	
R3	27.95
I3, C10, U1	29.20
I4	26.10
I3	23.50*
A7	20.25
West	
B3	27.95
C6	26.60
South	
A8	22.00
Alloy, Cold Drawn, East	
L2	35.20
R3, N1	37.90
R4	37.10
A11	30.50
J3, W10, L2	34.85
T11, S8	34.85
C10	34.85
Midwest	
R3	37.35
J3, W10, C10	34.85
B1	37.30
N9	34.85
L2	34.85
B5	38.60
M9	37.10
West	
R3	40.75
South	
J3	35.85
C16	28.00

Plates

Carbon Steel, East	
B3	23.25
L4, U1	25.75
P2	25.75
J3	26.75
Midwest	
B3	23.25
I3	25.75
J3, A7	22.80
U1, I4, S1	25.75
R3	26.75
West	
C6	24.25
U1, B3	25.75
O2	23.00
South	
R3	25.75
U1	25.75
Alloy, East	
B3	31.05
U1, L4	33.55
P2	33.55
J3	84.55
Midwest	
B3	31.05
G2, G3	33.55
I4, U1	33.55
West	
B3	33.55
O2	31.00
South	
U1	33.55

Wire

Carbon Steel Wire, East	
B3	27.10
A11	22.15
Midwest	
R3	24.60
N4, W7	27.40
K2	24.20
South	
A8	22.85
West	
C6	24.95

DURABLE ORDERS POST SECOND MONTHLY DECLINE

Unquestionably the pace of the growth in the economy is slowing. New orders for manufactured goods fell for the second consecutive month after alternating down-up, down-up from April through July.

Overall, orders for manufacturers dropped 1.8 pct to $189.0 billion, $3.6 billion less than August.

September new orders for durable goods alone dropped 4.1 pct to $98.1 billion compared with $102.2 billion in August.

Capital goods orders in nondefense industries in September rose after dropping in August, while the defense industries segment was down after being up in the previous month. In the latter category, defense industries orders dropped almost 17 pct to $6.5 billion compared with $7.6 billion the previous month. Non-defense capital goods orders, a key indicator of business investment, rose 4 pct to $27.6 billion versus August's $26.5 billion.

In metalworking, machine tools total orders in September rose dramatically after a precipitous drop the previous month. Orders rose 42 pct to $286.3 million compared with August's $201.0 million. Within that category metalforming tools orders dropped slightly—2.5 pct—while metalcutting orders rose 64.6 pct. In dollar terms, metalforming orders in the ninth month came to $64.0 million and metalcutting totaled $222.2 million.

Primary metals orders, after being stable for July and August, dropped almost 11 pct in September to $10.1 billion.

The biggest drop in durable orders—15.5 pct—was registered by the transportation equipment. Those orders were unchanged in August compared with July.

Of the 26 categories shown, 16 declined, seven were up and three were unchanged.

Billions of Dollars, Seasonally adjusted Monthly Total, unless otherwise noted Source: U.S. Dept of Commerce		Latest Month or Qtr.	Previous Month or Qtr.	Same Period Year Ago
CAPITAL EXPENDITURES (Annual Rates)				
U.S. Industry, Total	3rd Qtr.	*$316.2	$303.8	$270.0
Manufacturing, Total	3rd Qtr.	*135.3	126.0	111.1
Manufacturing, Durable Goods	3rd Qtr.	*64.8	58.3	53.1
Mining Industry	3rd Qtr.	*13.2	13.3	11.9
KEY INDICATORS, Durable Goods Manufacturing				
New Orders	Sept.	98.1	102.2	90.3
Shipments	Sept.	98.7	101.1	91.5
Inventories	Sept.	188.7	187.2	171.3
Unfilled Orders	Sept.	348.5	349.2	311.7
NEW ORDERS, METALWORKING				
Capital Goods Producers, Nondefense Industries	Sept.	27.6	26.5	25.2
Capital Goods Producers, Defense Industries	Sept.	6.5	7.6	4.8
Primary Metals, Total	Sept.	10.1	11.2	10.9
Steel (SIC 331)	Sept.	4.0	4.7	4.8
Iron & Steel Castings (SIC 332)	Sept.	1.2	1.3	1.3
Nonferrous Metals	Sept.	4.9	5.2	4.8
Nonelectrical Mach.-Equip. Industries, Total	Sept.	17.9	16.1	17.2
Engines & Turbines	Sept.	1.3	1.3	0.8
Farm Machinery & Equipment (Shipments)	Sept.	0.9	0.7	0.9
Construction, Mining & Mat. Hdlg. Equip	Sept.	2.9	2.4	2.6
General Industrial Machinery	Sept.	1.4	1.5	1.3
Fluid Power Equipment** (Index-1972=100)	Sept.	248.0	281.0	276.0
Metalworking Machinery	Sept.	1.1	0.9	0.7
Machine Tools, Total ($Mill., Unadjusted)***	Sept.	286.3	201.0	156.0
Machine Tools, Metalcutting***	Sept.	222.2	135.0	102.6
Machine Tools, Metalforming***	Sept.	64.0	65.6	53.3
Electrical Mach. & Equip. Industries, Total	Sept.	16.7	16.5	14.3
Elec. Transmission Equip. & Ind. Apparatus	Sept.	2.0	2.1	2.1
Household Appliances	Sept.	1.4	1.4	1.3
Communication Equipment	Sept.	5.9	6.1	4.3
Transportation Equip. Industrial, Total	Sept.	21.9	25.3	19.3
Motor Vehicles & Parts (Shipments)	Sept.	14.9	17.4	13.4
Aircraft, Missiles & Parts	Sept.	6.6	7.1	5.7
Shipbuilding & Military Tanks	Sept.	0.2	0.4	0.8
Fabricated Metal Products, Total	Sept.	11.9	12.0	10.8
Instruments, Total	Sept.	4.9	4.9	4.2

*Est.—Commerce Dept; **Source: National Fluid Power Assn.; ***Source: NMTBA